of Muslim scientists in Biology.

1.2

6. Describe organ and organ system level of biological organization.
OR Write a note on organization at Organ and Organ System Level.
OR What is organ?Explain organ system level
7. Explain organism level and community level.
8. Expalin atomic and molecular level.
OR Explain molecular level and tissue level.
OR Write molecular level and tissue level of organization of organisms.
9. Explain organism level and community level.
OR. Write a note on community level.
OR Explain the population level and community level.
OR Describe population and community level of organization of organisms.

1.2.1

10. Describe the cellular organization in detail.
OR Write a note on cellular organizations.
OR What is cellular organization? Explain its three types.
OR What do you know about cellular organization. Explain with example.
OR Describe that how cells organize themselves to make the bodies of organisms.
OR Explain unicellular organization. Malticellular organization and conolial organization.
11. Write a note on Multicellular Organization. Explain it with two examples.
12. Write a note on Frog.

Unit-2 Solving a Biological Problem

(MCQs)

2.1 Biological Method

1- Man always remained as:
(A) Chemist **(B) Biologist**
(C) Geologist (D) Scientist

2- Biological method has been playing an important role for the last:
(A) 400 years **(B) 500 years**
(C) 600 years (D) 1000 years

3- The scientific method in which biological problems are solved is:
(A) Geological problem
(B) Biological method
(C) Non-biological method
(D) All of these

2.1.1 Biological Problem, Hypothesis Deductions and Experiments

4- How many senses a biologist use for observations?
OR Number of Sense Organs are:
(A) 7 **(B) 5** (C) 6 (D) 12

5- The first step to solve a biological problem is:
(A) Hypothesis **(B) Observations**
(C) Deductions (D) Experimentations

6- The basic steps of biological method.
(A) Hypothesis (B) Deductions
(C) Observations **(D) Experimentation**

7- Biological Mehtod comprises of ______ steps.
(A) 5 (B) 6 **(C) 7** (D) 8

8- A biologist uses for observation:
(A) Sence Organs (B) Idealogy
(C) Data (D) Deduction

9- "It should be a general statement" belongs to:
(A) Experiment (B) Theory
(C) Hypothesis (D) Deduction

10- Tentative explanation of observation called:
(A) Hypothesis (B) Experiment
(C) Deduction (D) Problem

11- Deductions are drawn from:
OR Deductions are detected from:
(A) Experiment **(B) Hypothesis**
(C) Theory (D) Law

12- **Which of the following is a correct sequence in biological method?**
(A) Observation, hypothesis, law
(B) Hypothesis, observation, law
(C) Observation, hypothesis, deduction
(D) Law, theory, observation

13- **Logical results of hypothesis are called:**
(A) Problem (B) Experiment
(C) Deduction (D) Law

14. At which point is a biologist most likely to use reasoning:
(A) While taking observations
(B) During Hypothesis formulation
(C) During data organization
(D) None of these

15- **The test the hypothesis biologists perform:**
(A) Experiments
(B) Deduction
(C) Observations
(D) Hypothesis

16- **Which one of the following is not the characteristic of a good hypothesis:**
(A) Must be consistent with available data
(B) Must be testable
(C) Must be correct
(D) Must make prediction

17- **One litre of ethanol weighs ________ grams.**
(A) 700g (B) 980g
(C) 1000g (D) 789g

18- **A liter of water is heavier than.**
(A) Milk (B) Acid
(C) Oil (D) Ethanol

19- **Freezing point of water is less than its boiling point which type of observation is:**
(A) Qualitative
(B) Quantitative
(C) Competative
(D) Non-competition

20- **Freezing Point of Water is:**
(A) 100°C (B) 37°C
(C) 0°C (D) 98°C

2.1.2 Study of Malaria

21- **Meaning of aria is:**
(A) Air (B) smook
(C) Oduf (D) snell

22- **Responsible for Malaria fever is:**
OR **The cause of malaria is:**
OR **Which organism is cause of bacteria?**
(A) Paramecium (B) Amoeba
(C) Plasmodium (D) Virus

23- **Plasmodium is transferred by:**
(A) Fly (B) Virus
(C) Mosquito (D) Bacteria

24- **Plasmodium causes to spread the disease:**
(A) yellow fever (B) T.B
(C) Polio (D) Malaria

25- **Dengue fever is transmitted by:**
OR **Dengue fever is spread by:**
OR **Mosquito which spreads Dengue:**
(A) Culex mosquito
(B) Anopheles mosquito
(C) Aedes mosquito
(D) All of these

26- **In sparrows malaria is spread by:**
OR **It is responsible for the transmission of malaria in sparrow:**
OR **Malaria is spread in sparrows by mosquito:**
(A) Culex mosquito
(B) Anopheles mosquito
(C) Marshy areas
(D) Viruses

27- **Female Anopheles mosquito causes a disease:**
OR **Female anopheles causes:**
(A) Dengue fever
(B) Malaria fever
(C) Typhoid fever
(D) Flu fever

28- **The bark of which tree was found very suitable for curing malaria?**
OR **The branch of which tree was very suitable for curing malaria?**
(A) Cedrus (B) Pinus
(C) Cinchona (D) Cactus

29- **The bark of which plant contains Quinine.**
(A) Mango tree (B) Pinus
(C) quina quina (D) Guava tree

30- **Chemical found in the bark of cinchona plant is:**
(A) Aspirin (B) Adrenaline
(C) Quinine (D) Nicotine

31- **An effective drug for Malaria is:**
(A) Disprin (B) Actified

(C) Quinine (D) Theragran

32- Which disease had only treatment Quinine from 17th to 20th century:
(A) Diarrhea (B) Malaria
(C) cancer (D) Diarrhea and malaria

33- Infact quinine was the only effective remedy for malaria from 17th century to .... century.
(A) 18th (B) 19th
(C) 20th (D) 21th

34- A physician A.F.A king listed 20 Observations in:
(A) 1884 A.D (B) 1883 A.D.
(C) 1882 A.D (D) 1885 A.D.

35- Ronald Ross performed experiments:
(A) 1878 (B) 1880
(C) 1885 (D) 1888

36- French Army physician who worked on malaria in 1878.
(A) Laveran (B) Ronald Ross
(C) A.F.A king (D) Mendel

37- Which scientist firstly observed micro organisms in the blood of mollanial patient?
(A) Ronald Roosss (B) Laveran
(C) AFA King (D) Rob

38- Plasmodium is the cause of malaria. This statement is:
(A) Law (B) Theory
(C) Deduction (D) Hypothesis

39- If plasmodium is the cause of malaria, then all persons ill with malaria should have plasmodium in their blood. The above statement is a:
(A) Hypothesis (B) Deduction
(C) Theory (D) Law

40- The growth of plasmodium in human body takes place in:
(A) In stomach
(B) In small intestine
(C) In liver (D) In Kidneys

41- An Italian word "mala" means:
(A) Bad (B) Good
(C) Air (D) Water

2.1.3	Theory, Law and Principle

42- The hypothesis which are often tested and never rejected becomes:
OR Scientific law and principle is an unrejectable:
OR The hypothesis that stand the test of time are called:
(A) Law
(B) Theories
(C) Results
(D) None of these

2.2	Data Organization and Data Analysis

43- Proportion means to join two equal ratio by the sign of:
(A) = (B) ÷ (C) + (D) -

(Short Questions)

2.1	Biological Method

1. Define Scientific Method.
Ans. The method which is used by all scientists to solve a problem is called scientific method.

2. What is Biological Method?
OR What is meant by Biological method?
Ans. The scientific method in which biological problems are solved is called biological method.

3. What is role of Biological method in Biology?
Ans: Biological method has played an important part in scientific research for almost 500 years. From Galileo's experiment in the 1590s to current research, the biological method has contributed to the advancements in vaccine, medicine, ecology, technology etc. Biological method also ensures the quality of data for public use. Over population, discovery of new disseases and mutations in germs are factors which are responsible to change the environment of globe only biological method can play an important role to save our next generations.

4. How we can say man has always been a biologist?
OR Man has been a biologist since long. Explain?
Ans. Man has always been a biologist. He had to be a biologist in order to live. The more he knew about animals and their habitat, the more successful hunter he was.

Ans. The Italian words "Mala" means bad and "aria" mean air.

21. What is Incubation Periods?

Ans. The time period between the entry of parasite in host and appearance of symptoms of its attack is known as Incubation period.

22. What is female Anopheles and to which disease it relates?

Ans. Female Anopheles is a mosquito which spreads plasmodium and it relates to malaria.

23. What were the four major observations of malaria in the last part of 19th century?

Ans. Observation:

(i) Malaria and marshy areas have some relation.

(ii) Quinine is an effective drug for treating malaria.

(iii) Drinking the water of marshes does not cause malaria.

(iv) Plasmodium is seen in the blood of malarial patients.

24. Differentiate between culex and Aedes moquitoes.

OR Write the names of mosquito responsible for spread of malaria and dengue fever in human.

OR Name the mosquitoes spreading malaria in sparrows and human.

OR In which organisms culex and anopheles spread malaria?

Ans. Culex mosquitoes: Culex mosquitoes are responsible for malaria in sparrow.

Aedes mosquitoes: Aedes mosquitoes are responsible for dengue fever in human.

25. Write down two controls of malaria.

Ans. Control of Malaria:

(i) If sleeping places are open then use smoky fire to keep away mosquitoes.

(ii) Use of wire guaze on windows and doors to keep away mosquitoes to control malaria.

(iii) Use of mosquito Repellent in the form of lotion on the skin.

26. Write down the important observations of A.F.A King.

OR Write two observations of A.F.A King.

Ans. Important observations of A.F.A. King:

(i) People who slept outdoors were more likely to get malaria than those who slept indoors.

(ii) People who slept under fine nets were less likely to get malaria than those who did not use such nets.

(iii) Individuals who slept near a smoky fire usually did not get malaria.

27. Write the role of A.F.A King.

Ans. In 1883 A.F.A king listed 20 observations. On the basis of his observations king suggested a hypothesis.

"Mosquitoes transmit plasmodium and so are involved in the spread of Malaria"

28. Write down contribution of French Army physician Laveran.

Ans. In 1878, a French army physician **Laveran** began to search for "cause" of malaria. He took a small amount of blood from a malarial patient and examined it under microcope. He noticed some tiny living creatures. His discovery was not believed by other scientists. Two years later, another physician saw the same creatures in the bood of another malarial patient. Three years after the second discovery, the same creatures were observed for third time. The organism was given a name **Plasmodium.**

29. What is the relation of Cinchona with quina-quina?

Ans. Many plants from America were sent back to Europe to be used as medicines. The bark of a tree known as quina-quina was very suitable for curing fevers. It was so beneficial that soon it was impossible to carry enough bark to Europe. Some dishonest merchants began to substitute the bark of another tree, cinchon a which closely resembled quina-quina. This dishonesty proved much valuable for mankind. Cinchona bark was found to be excellent for treating malaria.

30. Write down importance of saliva for mosquito.

Ans. The saliva of mosquito prevents the blood from clotting in her food canal.

31. Why female mosquito inject saliva in to wound before drawing blood.

Ans. A female mosquito injects a small amount of saliva into the wound before drawing blood. So that, the saliva prevents the blood from clotting in her food canal, due to presence of anti-coagulant.

32. Why do we do itching after biting of mosquito?

Ans. When a female mosquito pierces the skin with her mouth parts, she injects a small amount of saliva into the wound before drawing blood. This kind of saliva is a cause of itching.

33. How Aedes mosquito spreads Dengue fever.

Ans. When Aedes mosquito bites on the skin of any person, then it pierces the skin with its mouth parts and suck blood and injects a small amount of saliva there. This saliva contains germs of Dengue, which latter causes Dengue fever.

2.1.3 Theory, Law and Principle

34. What is scientific law? Give two examples.
OR How is a scientific law formed?
OR What is a law? Define scientific law.

Ans. Productive theory keeps on suggesting new hypothesis and so testing goes on. Many biologists take it as a challenge and exert greater efforts to disprove the theory. If a theory survives such doubtful approach and continues to be supported by experimental evidence, it becomes a law or principle. A scientific law is a uniform or constant fact of nature. It is an irrefutable theory. Examples of biological laws are Hardy-Weinberg law and Mendel's laws of inheritance.

35. Write two examples of Biological Laws.

Ans. Two examples of Biological laws are as

(i) Hardy-Weinberg Law
(ii) Mendel's Law

36. Define Theory. OR How a theory is formulated?

Ans. When a hypothesis is given a repeated exposure to experimentation and is not falsified, it increases biologists' confidence in hypothesis. Such well-supported hypothesis may be used as the basis for formulating further hypothesis which are again proved by experimental results. The hypothesis that stand the test of time are called theories. A theory is supported by a great deal of evidence.

37. Define theory and law.
OR Differentiate between theory and law.
OR What is difference between theory and law?

Ans. Theory:

The hypothesis that stand the test of time often tested and never rejected, are called theories.

Law:

If a theory survives and continues after so many evidences and experimentation done by biologists, who took it as challenge to disprove by their doubtful approach. Then such theory acts a productive theory which later becomes a law or principle.

A scientific law is a uniform or constant fact of nature. It is an irrefutable theory.

Exmaples: Hardy-Weinberg law and Mendel's laws of inheritance.

38. What is meant by Productive Theory?

Ans. The theory that keep on suggesting new hypothesis and so testing goes on is called productive theory.

39. Write down two benefits of Productive Theroy.

Ans. Benefits of Productive Theroy:

(i) A productive theory produces new hypothesis and its further testing goes on.
(ii) If Any productive theory can not be falsified, then, it becomes a law or Principle.

2.2 Data Organization and Data Analysis

40. What are different formats of Data Organization?
OR How data is organized?
OR What is meant by Data organization?

Ans. In order to formulate and then to test hypothesis, scientists collect and organize data. Prior to conducting an

experiment, it is very important for a scientist to describe data collection methods. It ensures the quality of experiment. Data is organized in different formats like graphics, tables, flow charts, maps and diagrams.

41. Define Ratio and Proportion.
OR Define Proportion.
OR Differentiate between Ratio and Proportion.
OR What is difference between Ratio and Proportion.

Ans. **Ratio:** When the relation between a and b is expressed in the form of quotient, then such relation is called a ratio. A ratio is written by division (÷) or colon (:) sign between two quantities. For example the ratio between 50 malarial patient and 150 healthy patients is 1:3.

Proportion: Proportion means to join two equal ratios by the sign of equality (=). For example; a : b = c : d is a proportion between the two ratios. This proportion may also be expressed as a : b :: c : d. When three values in a proportion are known, the fourth one (X) can be calculated.

42. What is the importance of "Data analysis" in biological method?
OR How a biologist summarize result?

Ans. Data analysis is neccessary to prove or disprove a hypothesis by experimentation in biological method. It is very important step as it transforms raw data into information, which can be used to summarize and report results. The data organizations and data analysis are important steps in the biological methods. Data can be defined as, "The information such as name, date or values made from observations and experiments. It is done through the application of statistical methods i.e. ratio and proportion.

2.3 Mathematics: An Integral Part of Scientific Process

43. What is Bio-Informatics?
OR Write definition of Bio-Informatics.

Ans. Bioinformatics refers to the computational and statistical techniques for the analysis of biological data.

Note: No board has taken any question from this unit in 2015, 2016, 2017.

Unit-3 Biodiversity

(MCQs)

3.1 Biodiversity

1- Biodiversity of a species means its ....:
(A) Number **(B) Variety**
(C) Population (D) Community

2- The Number of organisms on earth is:
(A) 10 Thousand (B) Two lac
(C) 20 lac **(D) One crore**

3- Biodiversity is richer in:
OR The richer Texon is:
(A) Deserts
(B) Temperate Region
(C) Polar Regions
(D) Tropics

4- Diversity of the plants is called?
(A) Fauna **(B) Flora**
(C) Community (D) Biosphere

3.2 Classification: Aims and Principles

5- Correct sequence of classification is:
(A) Phylum, Class, Order
(B) Phylum, Order, Class
(C) Class, Order, Phylum
(D) Order, Phylum, Class

6- The basic unit of classification is:
(A) Class **(B) Species**
(C) Genes (D) Family

7- According to Classification, what is Human Order?
(A) Mammalia **(B) Primates**
(C) Hominidae (D) Homo

8- Class is a group of related:
(A) Genes (B) Species
(C) Order (D) Families

9- The vast Group of living organisms in biological taxonomy:
OR The biggest taxone is:
(A) Class (B) Phylum
(C) Kingdom (D) Family

10 Family is a group related:
(A) Genes (B) Orders
(C) Species (D) Classes

11- A related group of genera comprises:

OR Related genera combine to make a:
(A) Order (B) Family
(C) Class (D) Phylum

12- A group of related species called:
(A) Order (B) Genes
(C) Phylum (D) Kingdom

13- A genes is a group of related:
(A) Families (B) Classes
(C) Species (D) Order

14- The animal unable to reproduce is:
(A) Monkey (B) Mule
(C) Horse (D) Donkey

15- It deals with the calssification of organisms.
(A) Taxanomy (B) Entamology
(C) Anatomy (D) Botany

16- Branch of biology which deals with the study of classification of organisms and their evolutionary history is called:
(A) Taxonomy
(B) Systematics
(C) Bio informatics
(D) Genetics

3.3 History of Classification Systems

17- Who introduced the system of classification of organisms for the first time:
(A) Ernst Haeckel
(B) Aristotle
(C) Carolus Linnaeus
(D) Robert Whittaker

18- Taxon of order introduce first time by:
(A) Tournefort
(B) Linnaeus
(C) Rivinus
(D) John Ray

19- Who translated Aristotle's book De Anima into Arabic?
(A) Ibn Rushd
(B) Tournerfort
(C) Carleus Linnaeus
(D) John Ray

20- Theory of evolution purpose by:
(A) Aristotle (B) Darwin
(C) Bu Ali Sina (D) Lamark

3.3.2 Three Kingdom Classification System

21- Who proposed three kingdom classficalon:
OR A scientist who proposed a third kingdom i.e. Protista:
(A) Ernst Hackle
(B) E-Chatton
(C) Margulis
(D) Schwartz

22- Carolus Linnaeus divided nature in ____ kingdom
OR Carolus Linnaeus divided nature into kingdom:
(A) 2 (B) 3 (C) 4 (D) 5

23- Which group of living organisms absorbs his food from the environment?
(A) Protists (B) Fungi
(C) Bacteria (D) Animals

24- Who suggest the Kingdom protista?
(A) Abu usman
(B) Jabir Bin Hayan
(C) Ernest Hackel
(D) Arhanious

3.3.3 Five Kingdom Classification System

25- Five kingdom system introduce by:
OR Founder of five kingdom system of classification is:
(A) Margulis and Schwartz
(B) Robert whittaker
(C) Ernest Hackel
(D) Tonifort

26- Robert Whittakar introduced five Kingdom system of classification in the year:
(A) 1976 (B) 1967
(C) 1937 (D) 1896

3.4 Five kingdom

27- Kingdom protista has types:
(A) 2 (B) 3 (C) 4 (D) 5

28- Which of these is A-cellular.
(A) Human (B) Bacteria
(C) Fungi (D) Virus

29- To which kingdom viruses belong?
OR Viruses are signed to the Kingdom.
OR In which Kindom Viruses are included.
(A) Monera (B) Protista
(C) Fungi (D) None

30- Which kingdom all prokaryotic

animals belongs?

OR Bacteria are assigned to the kingdom:

OR All prokaryotic organisms are includes:

(A) Fungi **(B) Monera**
(C) Protista (D) Porifera

31- Which organism is included in kingdom monera.
(A) Cyanobacteria (B) Algae
(C) Fungi (D) Virus

32- Member of which group among the following are all Prokaryotes?
(A) Animals (B) Protists
(C) Bacteria (D) Plants

33- In which kingdom would you calssify unicellular prokaryotes?
(A) Fungi and palntae
(B) Fungi and monira
(C) Only protista
(D) Only fungi

34- Common example of kingdom fungi is:
(A) Mushrooms (B) Fern
(C) Algae (D) Mosses

35- Mushrooms are the example of kingdom.
(A) plantae (B) monera
(C) protista **(D) fungi**

36- Kingdom of fern is:
(A) Fungi (B) Protista
(C) Plantae (D) Animalia

37- Viroids are composed of only:
(A) Protein **(B) RNA**
(C) DNA (D) Carbohydrate

38- Algae belong to kingdom:
(A) Plantae (B) Fungi
(C) Protista (D) Monera

39- Nuclear envelope is absent in:
(A) Monera (B) Protista
(C) Fungi (D) Plantae

3.5 Binomial Nomenclature

40- Binomial nomenclature method was first time introduce by:
(A) Aristotle
(B) Carlus Linnaeus
(C) Redi (D) Darwin

41- In Binomial Nomenclature, the first letter of the ______ name is capitalized:
(A) Family (B) Class
(C) Species **(D) Genes**

42- Scientific name of onion is:
(A) *Allium Cepa*
(B) *Asterias rubens*
(C) *Zea mays*
(D) *Felis domsticus*

43- Allium Cepa is the scientific name of:
(A) Potato (B) Carrot
(C) Pea **(D) Onion**

44- Scientific name of house crow is:
(A) Corves Splandense
(B) Allium Cepa
(C) Rana Tigrina
(D) Asterias Rubens

45- Scientific name of star fish (Sea star) is:
(A) *Allium Cepa*
(B) *Zia-maize*
(C) *Asterias rubens*
(D) *Carvus spiendens*

46- Scientific name of human being is:
(A) *homo sapiens*
(B) *pisum sativum*
(C) *rosa indica*
(D) *allium cepa*

3.6 Conservation of Biodiversity

47- Eucalyptus plants were imported from:
(A) China **(B) Australia**
(C) Africa (D) None of these

48- The species which not present in any ecosystem called:
(A) Endangered species
(B) Global ecosystem
(C) Extinct species
(D) Population

3.6.1 Impact of Human Beings on Biodiversity

49- How many million population today live on earth?
(A) 200 (B) 400
(C) 600 (D) 800

50- Number of persons increasing in the world population after every one minute is:
(A) 180 (B) 290
(C) 280 (D) 490

51- Star fish eats:
(A) Algae (B) Fungi

(C) Bacteria (D) Mussels

3.6.3 Steps of the Conservation of Biodiversity

52- Himalayian Jungle project was started in:
(A) 1991 (B) 1995
(C) 1997 (D) 2013

3.6.4 Endangered Species in Pakistan

53- Houbara bustard is a large:
(A) Fish (B) Bird
(C) Reptiles (D) Plant

54- In which season Houbara bustard migrates to Pakistan and settles here?
(A) Summer (B) Spring
(C) Autum (D) Winter

55- National animal of Pakistan is:
OR Name of national animal of Pakistan is:
(A) Markhor
(B) Houbara Bustard
(C) Sheep (D) Peacock

56- The national bird of Pakistan is:
(A) Patridge (B) Sparrow
(C) Pigeon (D) Eagle

57- An extinct species in Pakistan is:
(A) Whale (B) Ibex
(C) Markhor (D) Swamp deer

58- In Pakistan, An endangered species is :
(A) Indus dolphin (B) Crow
(C) Sparrow (D) Deer

(Short Questions)

3.1 Biodiversity

1. What is meant by Biodiversity?
OR Define Biodiversity.
Ans. The term "biodiversity" has been derived from 'bio' and 'diversity'. "Diversity" means variety within a species and among species. Biodiversity is a measure of the variety of organisms present in different ecosystems.

2. Write importance of Biodiversity.
OR Write the role of Biodiversity in Ecosystem.
OR Write the role of biodiversity in ecosystem.
Ans. Importance of Biodiversity:
(i) Biodiversity provides food for humans.
(ii) A significant proportion of drugs are derived directly or indirectly from biological sources.
(iii) A wide range of industrial materials e.g. building materials, fibres, dyes, resins, gums, adhessives, rubber and oil are derived directly from plants.
(iv) Biodiversity plays important role in making and maintaining ecosystems.
(v) It plays a vital role in regulating the chemistry of our atmosphere and water supply.
(vi) Biodiversity is directly involved in recycling nutrients and providing fertile soils.

3. Differentiate between Flora and Fauna:
Ans. Flora:
Variety of Plants in a particular region is known as its Flora. Variety of Plants in Tropics and Temperate regions
Fauna:
Variety of animals in a particular region is known as its Fauna. Variety of animals in polar region.

3.2 Classification: Aims and Principles

4. What is difference between Taxonomy and systematics?
OR Define systematics?
Ans. Taxonomy:
The branch of biology which deals with classification is called taxonomy.
Systematics:
The branch which deals with classification and also traces the evolutionary history of organisms is known as systematics.

5. What is meant by Taxa? Write name of any Taxa.
Ans. The group to which organisms are classified are known as taxonomic categories or taxa (singular "taxon"). The taxa form a ledder called Taxonomic hierachy.
Example: kingdom is a taxon.

6. Name any four texa of classification.
Ans. (i) Kingdom (ii) Phylum
(iii) Class (iv) Order

7. What is the bases of classification? Explain.
OR What is meant by classification?

Ans. Classification is based on relationship among the organisms and such relationship is got through similarities in characteristics. These similarities suggest that all organisms are related to one another at some point in their evolutionary histories. However, some organisms are more closely related than other. For example sparrows are more closely related to pigeons than to insects. It means that these two former have common evolutionary histories. When biologists classify organisms into groups and subgroups, the similarities are seen in external and internal structure and states of development.

8. Describe aims of classifications.
OR Write down two aims of classification?
OR What are the main aims of taxonomy and systematics?

Ans. Aims of Classification:
The main aims of classification are.
(i) To determine similarities and differences among organisms so that they can be studied easily.
(ii) To find the evolutionary relationship among organisms.

9. What is the basic unit of Classification? Define it.

Ans. A species is a group of organisms which can interbreed freely among them and produce fertile offspring, but are reproductively isolated from all other such group in nature. Basic unit or category of classification is "species"

10. Define Species
OR What is meant by Species.

Ans. Species is the basic unit of classification. "A species is a group of organisms which can inter breed freely among them and produce fertile offspring, but are reproductively isolated from all other such groups in nature".

11. What is meant by Taxonomic Hierarchy?
OR What is Taxonomic Hierarchy?

Ans.
(i) The arrangement of taxon in taxonomy is termed as Taxonomic Hierarchy.
(ii) All organisms have been divided into Five Kingdoms. That's why the biggest taxon is Kingdom.
(iii) On the basis of similarities. Each Kingdom is further divided into smaller taxa.
a) Kingdom b) Phylum
c) Class d) Order
e) Family f) Genus
g) Species
(iv) Lower taxon in Taxonomic Hierarchy show great resemblances as compared to Higher taxon.
(v) Animals of same species can interbreed freely and can produce fertile offspring.

12. Differentiate between Class and Order.

Ans. Class:
A Class is a group of related order.
Order:
An order is a group of related families.

13. Write down simple classification of "Human".

Ans.

Human	Taxa
Animalia	Kingdom
Chordata	Phylum
Mammalia	Class
Primates	Order
Hominoidae	Family
Homo	Genus
Homo sapiens	Species

14. Give simple classification of Pea:

Ans. Classificaion of Pea Plant:

Pea Plant	Taxa
Plantae	Kingdom
Magnoliophyta	Phylum
Magnoliopsida	Class
Fabales	Order
Fabaceae	Family
Pisum	Genus
Pisum sativum	Species

15. Write down the scientific name of

Human being and Pea plant:

Ans.

i. Scientific name of Human being is *Homo sapiens*.

ii. Scientific name of pea plant is *Pisum sativum*.

16. Mule is result of unnatural cross. Why?

Ans. Un-natural Cross: Two different but closely related species can interbreed un-naturally but they can produce only infertile off join spring through this un-natural mating offspring.

Examples:

(i) A cross between a male donkey and a female horse produces an infertile offspring called Mule.

(ii) Mule is incapable of sexual reproduction.

3.3 History of Classification Systems

17. In which kingdoms Carolus devided the nature?

OR Describe the contributions of Carlous Linnalus in classification.

OR Write two achievements of Carlous Linnaeus.

Ans. Carolus Linnaeus divided nature into three kingdoms; animals, plants, mineral. Linnaeus is best known for his introduction of the method still used to formulate the scientific name of every species.

18. What is difference between mode of nutrition of Fungi and animals?

Ans. Nutrition in Fungi:

(i) Fungi are Multicellular heterotrophs and have absorptive mode of nutrition.

(ii) Mostly Fungi are decomposers.

Nutrition in Animals:

(i) Animals are Multicellular heterotrophs and have ingestive mode of nutrition.

(ii) Animals digest their food inside the body in specific parts for digestion.

3.3.1 Two Kingdom Classification System

19. What is meant by Two Kingdom Classification? On which thing is it based?

Ans. This is the oldest system and classifies all organisms into two kingdoms ie. Plantae and Animalia. According to it, all organisms that can prepare food from simple inorganic materials and thus can store energy are autotrophs and are included in kingdom plantae. On the other hand, the organisms that cannot synthesize their food and depend on autotrophs or others are hetetrophs and are included in kingdom animalia. According to this system, bacteria, fungi and algae were included in kingdom plantae.

20. Write the names of Two Kingdom in Two Kingdoms System.

OR Write any two characteristics of kingdom plantae.

Ans. The names of Two Kingdom in Two Kingdoms system are;

Kingdom animalia: The organisms that cannot synthesize their food and depend on autotrophs or others heterotrophs are included in kingdom animalia.

Kingdom plantae: All organisms that can prepare food from simple inorganic materials like Autotrophs are included in kingdom plantae.

21. What are differences between Autotrophs and Heterotrophs.

Ans. Autotrophs:

All those organisms which do not depends upon other organisms for getting their food are autotrophs.

Example: Plants.

Heterophs:

All those organisms which depends upon others organisms for getting their food are autotrophs.

Example: Animals.

22. What are Autotrophic or ganisms? Give an example.

Ans. Autotrophic Organisms: All those organisms which do not depends upon others organisms for getting their food are autotrophic organisms.

Examples: All green plants are examples of autotrophic organisms.

3.3.2 Three Kingdom Classification System

23. What is meant by three kingdom

two examples.

Ans. Extinct Species: A species that no longer lives in an ecosystem is said to be extinct in that ecosystem. When species of an ecosystem become extinct, the stability of ecosystem is harmed.

Examples: Lions, tiger swamp dear are extinct species in Pakistan.

47. What is difference between extinct and endangered species?

Ans. Extinct Species:

In an ecosystem, a species is called extinct when there is no doubt that the last individual of that species has died in that ecosystem.

Endangered Species:

A species is called endangered when it is at risk of extinction in near future.

Examples: Lions, tiger swamp dear are extinct species in Pakistan.

48. On which four factors the diversity of organisms in a region depends upon?

Ans: Diversity of organisms depends upon following factors:

(i) Temperature
(ii) Altitude
(iii) Geography
(iv) Presence of other species.

3.6.1 Impact of Human Beings on Biodiversity

49. What are effects of human being on Biodiversity?

Ans. By rapid increase in human population, we are imposing serious threats to the survival of biodiversity. Habitat loss is the greatest threat to biodiversity on Earth today.

50. What is meant by Soil erosion?

Ans. Heavy rainfall washes soil into rivers essential nutrients are washed out of soil and it is called soil errosion.

3.6.2 Deforestation and Over-hunting

51. What is meant by Deforestation. Describe two causes of Deforestation.

OR Define deforestation and write its causes.

Ans. Deforestation means cutting down of trees for the conversion of a forest to non-forest land.

Cause of Deforestation:

(i) Deforestation is done for using the land for various purposes such as pasture, agriculture, urban use etc.

(ii) The race to produce cash through fruits, spices, sugar, tobacco, soap, rubber, paper and cloth has stimulated many to get them by using soil and by destroying the forests.

52. Write two effects of deforestation.

Ans.

(i) Deforestation affects the amount of water in soil and mositure in atmosphere. As result soil erosion and floods like problems are produced.

(ii) Deforestation also contributes to decreased transpiration, which lessens cloud formation. This ultimately reduces the sources of rains.

53. Write down two reasons of los of Biodiversity.

OR What are main reasons of species extinction?

Ans. i) Deforestation
ii) Over hunting

54. What are the effects of over hunting on animanls population.

Ans. Over-hunting has been a significant cause of the extinction of hundreds of species and the endangerment of many more species.

3.6.3 Steps of the Conservation of Biodiversity

55. Write down the names of two organizations who conservate the biodiversity.

OR Which two organizations are working for protection of biodiversity in Pakistan?

Ans. There are two names of organizations for conservation of biodiversity.

(i) International Union for the Conservation of nature and Natural Resources. (IUCN)

(ii) World Wildlife Fund-Pakistan (WWF-P).

56. Write names of two projects for conservation of biodiversity in

Pakistan.

Ans. 1. Himalayan Jungle Project.
2. Nothern areas conservation project.

3.6.4 Endangered Species in Pakistan

57. Write a short note about Houbara bustard.

OR Write a short note on Marcopolo sheep.

OR In which area Houbara Buster are found?

OR Where Marcopolo sheep is found in Pakistan? Which organization is working for its conservation?

OR Briefly introduce the Houbara Bustard & Marco Polo Sheep.

Ans. **Houbara bustard:** This bird flies to Pakistan in winter season from former Soviet territory and settles in Cholistan and Thar deserts. The decline in its population is due to hunting by foreigners and destruction of its habitats.

Marco Polo sheep: Marco Polo sheep are mostly found in the Khunjerab National Park and nearby areas. Their numbers have been rapidly decreasing in the last two decades and WWF-P has started projects for its conservation.

58. What do you know about Indus Dolphin?

Ans. According to WWF-P, only 600 animals of the species of Indus dolphin are left today in the Indus River. The population of this species declined due to water pollution, poaching and desctruction of habitat. Now steps are taken by WWF-P for its conservation.

59. Write the name of national animal of Pakistan.

Ans. Markhor is the national animal of Pakistan.

Long Question (Unsloved)

3.1
1. Describe the importance of Biodiversity.

3.2
2. What is Taxon? How Taxa are used in classification of organisms?

OR What is meant by taxonomy? Write Taxonomic Hierarchy in order.

3. Describe the aims and rules of classification.

3.3 3.3.2
4. Write a note on three kingdom Classification System.

3.3.3
5. Describe general characteristics of five kingdom system as proposed by Margulis and Schwartz.

3.4
6. Explain three main types of organisms placed in kingdom protista.

7. Viruses are considered at the borderline of living and non living. Explain.

3.5
8. Explain binomial nomenclature.

OR Define Binomial Nomen Clature and write its rule.

OR Describe the significance of binomial nomenclature with examples.

3.6
9. Define endangered species and explain with two examples.

3.6.1
10. Explain the impact of human beings on Biodiversity.

3.6.2
11. Write the causes and effects of deforestation.

3.6.3
12. Write three major steps taken by the Government of Pakistan for conservation of biodiversity.